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Verification of Translation

U.S. Patent Application No. 10/796,704

Title of the Invention:

SEMICONDUCTOR LASER DEVICE AND OPTICAL
PICKUP APPARATUS USING THE SAME

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At Osaka, Japan

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Signature of the translator


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Title of the Invention: SEMICONDUCTOR OPTICAL DEVICE APPARATUS

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Applicant: Mitsubishi Chemical Corporation

(Page 11, left column, lines 28-48)

[0058] Furthermore, it was confirmed by SEM observation that the ridge-shaped p-type second cladding layer is formed on the protective film made of SiN_x so as to overlap it by about $0.4\ \mu\text{m}$ as shown in FIG. 1. It was confirmed that, although the swell of a ridge-side wall is slightly large in a stripe width increment portion, the p-type second cladding layer also is formed on the protective film so as to overlap it by about $0.4\ \mu\text{m}$ in this portion. Furthermore, in the entire stripe width, the contact layer covered the entire surface of the ridge-side wall. Consequently, the ridge-shaped p-type second cladding layer was exposed to the surface to prevent the surface from being oxidized. There is no particular problem in covering a partial or entire surface of the ridge-side wall with the SiN_x protective film after the growth of the ridge, as in the conventional method. However, in the present example, considering the simplification of a process, the reduction in contact resistance, and the like, a protective film made of a dielectric or the like was not formed on the ridge-side surface.

[0059] After that, a p-side electrode 113 was vapor-deposited, and the substrate was thinned to $100\ \mu\text{m}$. Then, an n-side electrode 114 was vapor-deposited to be alloyed (FIG. 1(c)). A chip bar was cut out from the wafer thus produced by cleavage, whereby a laser resonator structure was formed. The resonator length at this time was set to be $500\ \mu\text{m}$. Asymmetric coating (front end surface 10% - rear end surface 90%) was performed, and thereafter, the chip bar was separated into chips by secondary cleavage.